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TITLE: ELECTRICAL SAFETY OUTLET

BACKGROUND OF THE INVENTION

Field Of The Invention

The present invention relates generally to an electrical outlet, and more particularly, though not exclusively, to an electric outlet that minimizes the risk of shock by incorporating a safety switch that provides an electrical connection after being properly engaged by a conventional electrical plug.

Problems In The Art

Currently, most households receive electricity from an outside source such as a power plant's generator. This electricity is typically transmitted in the form of an alternating current over an electrical grid and into a home. Inside the home, the electrical power is routed to several sockets on electrical outlets that allow users to power various devices, such as lamps, televisions, vacuums, etc. The electricity supplied to the electrical outlets in the home typically has a maximum voltage of 170 volts, an RMS voltage of 120 volts, and a frequency of 60 Hz. This is more than sufficient to kill or seriously injure a human being.

Because of the risk of severe injury or death from inadvertent or accidental contact with electricity, a

variety of precautions and safety measures have already been taken. For instance, there are several varieties of outlet covers or socket inserts available today. Outlet covers and socket inserts are typically used to prevent small children from accessing the sockets and accidentally touching the potentially deadly electrical contact arms therein.

Unfortunately, outlet covers and socket inserts are not fail proof. They may be inadvertently removed or bypassed, giving a curious child access to one or more of the electrical contacts. Human contact with even one of the electrical contact arms may have potentially devastating consequences.

Further, outlet covers and socket inserts are inconvenient to use. Many get lost or broken and must frequently be replaced. Outlet covers and socket inserts also make access difficult for even proper use. Therefore, it is desirable to provide an electrical outlet with a safety feature that is both convenient to use and difficult to remove.

Additional attempts to improve the safety of electrical outlets, by minimizing the effects of any shock received, have also been made. Many outlets now include devices, such as a ground fault circuit interrupter (GFCI), that cut the flow of electricity if an imbalance, such as

occurs during a shock, in the flow occurs. While these devices significantly reduce the chances of serious injury, an initial shock still occurs. This initial shock occurs because the power supplied to electrical outlets is generally always available. There is therefore a need for a safety device that limits the availability of electrical power from an outlet.

Features Of The Invention

A general feature of the present invention is the provision of an electrical outlet which overcomes the problems found in the prior art.

A further feature of the present invention is the provision of an electrical outlet that is convenient to use.

Another feature of the present invention is the provision of an electrical outlet that incorporates safety features which are difficult to remove.

A further feature of the present invention is the provision of an electrical outlet that minimizes the chance of shock from accidental contact with one of the electrical contacts.

A still further feature of the present invention is the provision of an electrical outlet that limits the availability of electricity.

These, as well as other features and advantages of the present invention, will become apparent from the following specification and claims.

SUMMARY OF THE INVENTION

The present invention generally comprises an electrical outlet that incorporates a safety switch. The present invention includes a switch that limits the availability of electricity. Any type of switch may be used, including lever actuators, roller switches and other mechanical switches. Further, sensor type switches may be used, including optical sensors, magnetic sensors, etc. One sensor may be used per socket or per contact slot.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a pictorial representation of a typical electrical outlet and conventional electrical plug.

Figure 2 is an internal view of one embodiment of the safety outlet of the present invention.

Figure 3 is an internal view of one embodiment of the safety outlet of the present invention in the off position.

Figure 4 is an internal view of one embodiment of the safety outlet of the present invention in the on position.

Figure 5 is an internal view of a second embodiment of the safety outlet of the present invention.

Figure 6 is an internal view of accidental contact with one of the conducting arms of the second embodiment of the safety outlet of the present invention.

Figure 7 is an internal view of proper contact with both of the conducting arms of the second embodiment of the safety outlet of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT(S)

The present invention will be described as it applies to its preferred embodiment. It is not intended that the present invention be limited to the described embodiment. It is intended that the invention cover all modifications and alternatives which may be included within the spirit and scope of the invention.

As shown in Figure 1, the safety outlet **10** of the present invention appears similarly to a typical electrical outlet. The outlet **10** has any number of sockets **12** each having a first contact slot **14**, second contact slot **16**, and a ground slot **18**. A conventional electrical plug **20** is also shown. The plug **20** usually includes a first blade prong **22** and a second blade prong **24**. The plug **20** may also include a third cylindrical prong 26 for a ground connection. All of the prongs **22**, **24**, and **26** fit into the corresponding slots **14**, **16** and **18** on the socket **12** in the outlet **10**.

The preferred embodiment of the invention is shown in Figure 2. A first electrical contact arm **28** is in the first slot **14**. A second electrical contact arm **30** is in the second slot **16**. Typically these arms are made of copper or another conductive substance and separated from one another by a piece of plastic or other non-conductive substance. Power is supplied to the electrical contact arms **28** and **30** by an electrical power wire or cable **32**. Preferably, a switch **34** is associated with each slot **14** and **16**. Additional switches may also be associated with any other slots, including slot **18**.

Each switch **34** has an on and off position. In the on position, electrical current will be permitted to pass. In the off position, no electrical current will pass and the contact arms **28** and **30** will be dead. Therefore any accidental contact with either of the contact arms **28** and **30** will not be harmful. Further, since the switch **34** is in the outlet itself, removal is extremely difficult.

The switches **34** may be of any type, including mechanical switches such as lever actuators, roller switches, push button switches, rotary switches, etc. Optical, magnetic, or proximity sensors may also be used if the sensor(s), used herein as equivalent to a switch, is properly positioned. The operability and installation of any of the above switches is well known in the art. Any

necessary connecting wire **36** is used to connect each of the switches **34** such that both must be in the on position before any electricity will flow to either of the contact arms **28** and **30**. Both of the switches **34** will be moved into the on position by simply inserting a conventional plug **20** into the slots **14** and **16**. As there are no parts to remove before a conventional electrical plug **20** may be inserted, the present invention is very convenient to use.

A simple mechanical switch is shown in Figures 3 and 4. Before a conventional electrical plug **20**, including blade prongs **22** and **24**, is inserted into the outlet **10**, the switches **34** are in an off position as is shown in Figure 3. After the plug **20** is properly inserted, both of the switches **34** have been moved to their on position and electricity will flow to the conducting arms **28** and **30** and into the prongs **22** and **24**, shown in Figure 4.

Another embodiment of the invention is shown in Figures 5, 6, and 7. In this embodiment, a single switch **34** is used. However, the switch **34** has a pivotal head **40** or other mechanism that protrudes into both slots **14** and **16**. As is shown in Figure 5, when the switch **34** is fully extended, it is in the off position and no electricity flows to either contact arm **28** or **30**. Typically, a curious child will use a fork, stick or other object to poke at one of the slots **14** or **16**.

Figure 6 illustrates that when an object, such as the screwdriver **38** shown, is inserted into only one of the slots **14** or **16**, the switch **34** remains in the off position. When an object such as the plug **20** is properly inserted into both slots **14** and **16**, the switch **34** is moved into the on position and electricity will begin to flow to the contact arms **28** and **30** and into the prongs **22** and **24** as is shown in Figure 7. In this manner, no electricity is available at the contact arms **28** or **30** unless the slots **14** and **16** are properly accessed, thereby minimizing the risk of shock from accidental contact with either of the contact arms **28** or **30** individually.

A general description of the present invention as well as a preferred embodiment of the present invention has been set forth above. Those skilled in the art to which the present invention pertains will recognize and be able to practice additional variations in the methods and apparatus described which fall within the teachings of this invention. For example, the present invention contemplates numerous variations in the size and shape of the plug and prongs as may be appropriate for a particular voltage or frequency of an AC source or as may be otherwise appropriate or desirable for a particular context or environment. Accordingly, all such modifications and additions are deemed to be within the scope of the

invention which is to be limited only by the claims appended hereto.